

Reply to Office Action of 9/22/2003
Appl. No. 09/778,709

REMARKS

Reconsideration of the application is requested in view of the above amendments and the following remarks. Claims 1-11, 18-21, and 124 are pending in this application. Minor amendments to claims 1 and 18 have been made. Claims 8 and 9 were rejected for lack of enablement as required by 35 U.S.C. § 112, ¶ 1. Claims 1 and 18 were rejected under 35 U.S.C. § 112, ¶ 2, as indefinite. Claims 1, 2, 5, 7, 8, 11, 18, 19, and 124 were rejected under 35 U.S.C. § 102(b) as anticipated by Kosenmaki et al. (U.S. Pat. 6,000,603). Claims 3, 4, 6, 10, 20, and 21 were rejected under 35 U.S.C. § 103 as obvious over Kosenmaki. The Applicants respectfully traverse these rejections.

Claim Objections

Claim 1 was objected to because of a grammatical error. This error has been fixed in the amended claim. Accordingly, the Applicants respectfully contend that the objection no longer applies.

35 U.S.C. § 112, ¶ 1, Rejection

Claims 8 and 9 were rejected for lack of enablement under §112, ¶ 1, because the written description fails to enable one having ordinary skill in the art to make or use the invention. Specifically, the Examiner argued that it was unclear how a metal plating layer or a gold plating layer would be capable of "allowing the first metal layer and the second metal layer to be adhered releasably." The applicant respectfully traverses this rejection.

One with ordinary skill in the art would be able to make and/or use the invention. Such a person would recognize the properties of different metals, and the consequential ability of metals to releasably adhere to one another. Different kinds of metals involve different lattice constants. This difference in lattice constants causes stress to develop at the interface of the metals. As a result, metals can be peeled off one another at a force lower than that which would cause the metal itself to fracture. Since one having ordinary skill in the art possesses this knowledge, such a person would be able to make and/or use the invention based upon the teachings of the written description.

Reply to Office Action of 9/22/2003
Appl. No. 09/778,709

35 U.S.C. § 112, ¶ 2, Rejection

Claims 1 and 18, along with any claims dependent thereon, were rejected under 35 U.S.C. § 112, ¶ 2, for indefiniteness. The Examiner believed that the transition of claim 1, stating that the transfer material comprises "at least three layers of," renders the claim unclear. The Applicants respectfully traverse this rejection. In order to clarify that the transfer material includes at least one of each of the three different layers described in the body of the claim, the transition has been amended. The Applicants respectfully contend that this rejection no longer applies.

Claim 18 was found indefinite because the claim fails to recite the location where the circuit component is attached to the transfer material. The Applicants respectfully traverse this rejection. The circuit component may be attached anywhere to the second metal layer as long as it is electrically connected thereto. In order to increase the clarity of this requirement, claim 18 has been amended. As claim 18 sets forth a clear relationship between the circuit component and the transfer material, the Applicants respectfully request that this rejection be withdrawn.

35 U.S.C. § 102(b) Rejection

Claims 1, 2, 5, 7, 8, 11, 18, 19, and 124 were rejected under 35 U.S.C. § 102(b) as anticipated by Kosenmaki et al. The Applicants respectfully traverse this rejection. In claim 1, the second metal layer is used as a wiring pattern and it is substantially flat. As a non-limiting example, Figure 1 in the application illustrates the substantially flat wiring pattern (103).

In the apparatus disclosed by Kosenmaki, however, the second metal layer is neither used to create a wiring pattern, nor is it flat. The second metal layer in Kosenmaki comprises a soldering material which is shaped and melted to form solder balls. These solder balls are thereafter used to connect electronic packages and substrates such as printed circuit boards. (Col. 1, ll. 50-55). The second metal layer (22) of Kosenmaki is formed in the shape of pyramidal or tetrahedral projections (36) having apexes (see Fig. 1b; Fig. 1c; Col. 2., ll. 28-34). These apexes are a critical requirement. The precursor structure (20) illustrated in Fig. 1a must be embossed with the embossing tool (28) illustrated in Fig. 2. in order to provide the apexes necessary to produce a solder ball capable of providing a secure solder connection. (Col. 5, ll.

Reply to Office Action of 9/22/2003
Appl. No. 09/778,709

35-55). Thus, the second metal layer of Kosenmaki requires apexes and is not substantially flat as required claim 1. Kosenmaki fails to anticipate claim 1 for at least this reason. Furthermore, the second metal layer of Kosenmaki does not correspond to a wiring pattern, but a soldering pattern. For this reason as well, the teachings of Kosenmaki fail to anticipate claim 1.

Claim 124 requires that all three layers (the first metal layer, the second metal layer, and the peel layer) are capable of being etched by the same etchant. It would be impossible to etch the three layers included in the apparatus taught by Kosenmaki using the same etchant. Kosenmaki teaches that resin (either thermosetting resins, thermoplastic resins, or combinations thereof) can be used to form the adhesive layer (Col. 4, l. 66 - Col. 5, l. 27). Kosenmaki also teaches that the materials that can be used in the first metal layer (24) are aluminum, Teflon (PTFE), or the like (Col. 4, ll. 62-65); and the second metal layer (22) is comprised of a low melting metal such as solder. (Col. 4, ll. 59-60).

Thermosetting and thermoplastic resins cannot be etched using the same etching agent as required for the first and second metal layers of claim 124. This is demonstrated by the fact that resin is typically used to make the substrate on which a printing wiring pattern is placed and etched. During the etching process, only the metal wiring is etched; the substrate itself is not. Thus, Kosenmaki fails to teach of an apparatus in which the first metal layer, second metal layer, and peel layer, can be etched using the same etching agent. For at least this reason, Kosenmaki fails to anticipate claim 124.

The remaining claims are not anticipated for at least the reason that they depend from an allowable base claim.

Reply to Office Action of 9/22/2003
Appl. No. 09/778,709

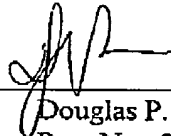
In view of the above, Applicants respectfully request reconsideration of the application in the form of a Notice of Allowance.



Date: December 22, 2003

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903
(612) 332-5300

By: 
Douglas P. Mueller
Reg. No.: 30,300
DPM/TSW